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ON THE WINTER NEST OF THE HARVEST MOUSE.

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THE mode of nidification of the Dwarf or Harvest Mouse, essentially different from that of its congeners, is a fact well known to naturalists, and so singular in its nature that it must attract the curiosity of every one.

Little, however, is known about the varieties which the nests present, and nothing at all about the very different kinds of nests which the little animal builds in certain localities for its retreat in the cold season.

Although spread over a great part of Europe as far as Western Asia, the Harvest Mouse is generally reputed a species of rare occurrence. This fact finds its explanation in several circumstances. The little creature easily escapes the attention of man on account of its diminutive size and the rapidity of its motions. In other instances it is taken, notwithstanding the difference in colour, for the young of the common Wood Mouse, *Mus sylvaticus*. The nests are generally regarded by the people as birds' nests, and this goes so far that even experienced hunters could not be convinced of the contrary. When I called the attention of some mowers to these nests, they assured me that they had occasionally seen them in the fields, but had always looked upon them as a mere conglomeration of dry grass. The greatest difficulty to observe these little animals lies in the particular mode of their distribution

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over the country. In general they occur in isolated couples in brushwood, cornfields, and meadows, but nobody will be aware of their presence unless he detects one of their nests; and if he has the rare luck to find one, he will soon conclude that the species is spread over the country in single couples, living at great distances from one another. It is indeed an exceptional case when they are found forming a colony, and such a one is sometimes restricted to a colony of little extent. When surprised by inundation of the meadows, they are sometimes seen flocking together in considerable numbers trying to save themselves by climbing up to the crown of grass and plants.

The system of colonisation of this animal is, however, not permanent, the colony being often reduced in the following year to a small number of couples. No doubt that the increased number produced by a favourable multiplication in certain years contributes to the fluctuation observed in the distribution of these animals.

I now purpose to enter into some details about a colony of the Harvest Mouse I met with in the summer of the year 1868, in a locality not examined before that time in its whole extent, and of which colony only a small number of couples remained in the following years. This locality is situated at the distance of about two miles from the town of Leyden, in the neighbourhood of the Castle of Endegeest, celebrated for having served as a refuge to the philosopher Descartes after his exile from France. There exists, on the right side of the road leading to the neighbouring village of Rynsburg,—not less celebrated for its Abbey and as the residence of the freethinker Spinoza,—a ditch of about a quarter of a mile in length and six paces in width, intersecting a field planted with vegetables. Its right border was for one-half of the length grown with high reeds, the other longitudinal half showing no vegetation. The ditch, however, being blind at the end, became partly dry, by evaporation, during the hot season. It was in the reeds of this ditch that a part of the colony of the Harvest Mouse had settled and had built their nests, also making use for this purpose of the herbs growing near the border side.

After having detected the colony, I gave my orders to a man who for more than forty years has been in the service of the Museum, and who has no other charge than accompanying myself or our sportsmen when out in the field—a man who catches birds,

fishes, and other animals, seeks nests and eggs of birds, and gathers all sorts of objects from the sea-shore. During the whole year he was to go to the spot every week in order to observe the little mice in question, and to extend his excursions in search for others for several miles in the neighbourhood, whereas I myself from time to time visited the field of our observations.

It soon appeared that the reeds of the ditch contained about fifty nests of the Harvest Mouse, that isolated nests were found in the neighbouring lanes, scattered here and there in herbs growing amongst the brushwood, and that a small part of the colony had established itself, likewise in herbs amongst brushwood, at the distance of about a mile from the principal colony, occupying the reeds of the ditch. The nests of this smaller colony were likewise scattered in places fit for the purpose, and their number observed did not exceed about twenty.

The discovery of so considerable a number of the curious nests of the Harvest Mouse, in a comparatively limited space, afforded great satisfaction, the more so as a previous and active search after them during forty-three years had led to no other result than the discovery of two such nests: the one found, in the year 1853, among the branches of a shrub of *Hippophaë rhamnoides*, on the dunes to the north of the village of Noordwijk-upon-Sea; the other, found in the year 1854, placed in one of the oak-shrubs growing southward of the aforesaid locality, about a mile distance from the sea-shore.

Wishing to preserve from destruction the colony of this interesting little animal, established in the neighbourhood of my residence, I selected for our collection no more than about twenty nests, showing the different modes of variation which they present in general.

I must state beforehand that the ditch concealing the largest number of nests of the Harvest Mouse was also inhabited by a couple of *Calamodyta arundinacea* and by another couple of *C. phragmitis*, that two couples of *C. palustris* had established themselves in the herbs of the immediate outside border of the reeds, and that the nests of all these birds were found and collected.

The nests of the Harvest Mouse are in general of a globular form, of the average size of a man's fist, and show, on one side, somewhat towards the top, a circular opening sufficiently wide for

the entrance of the little animal. The nests found in the ditch were commonly placed towards the top of the reeds; for those built on the outside of the water and in the shrubs the animals had chosen gramineous plants and all sorts of herbs, especially *Rubus fruticosus*, *Rumex acetosa*, and *Epilobium*. It happens even that our little animal, probably pressed by the necessity of bringing forth its progeniture, accommodates for this purpose one or the other bird's nest within its reach by covering these nests with a cap of grass. In the two instances observed of this kind, one of the nests belonged to *Calamodyta arundinacea*, the other to *Sylvia cinerea*, the latter one still containing the broken eggs of the bird.

Several nests contained the still naked young mice. As to the old mice, there was no other way to get hold of them than catching them with the hand while they were in their nest or about to enter it; and even in this way chance alone could ensure success, the movements of the little creature being performed with surprising agility; even whilst climbing their tail is partly twined about the reeds or branches—a peculiarity also observed by Pallas with respect to *Mus vagus* and *M. betulinus*. It was in vain that we set traps of different structure and provided them with all kinds of bait. *Mus sylvaticus* and *M. musculus* were from time to time caught in those traps, but not a single *M. minutus*.

I think it worth while to mention here the singular fact of a specimen of *Mus minutus* observed in the year 1851, as a straggler in the middle of the town of Leyden. A living specimen of this mouse having been caught in a trap of iron network placed in a room was brought to one of the inhabitants, then a student at the University. This gentleman, Mr. R. T. Maitland, as an experienced naturalist, at once recognised the species, and seeing that the specimen was a pregnant female, he shut it up in a bird's cage, at the same time putting into it a quantity of paper-shreds, cotton, and other soft matter. The little animal soon afterwards began to build a nest in the wonted globular form, and to deposit in it two young ones.

I now return to our colony of mice in the ditch. After the breeding season the reeds of the ditch were cut down, with the exception of a small patch of reeds in the middle of the ditch and beyond the reach of the mowers. We then saw, to our great astonishment, that our little mice established between these reeds nests of a very different character from those destined to receive

their progeniture. They were composed of different water-mosses (*Hypnum*), covering the surface of the bottom of the ditch, which for want of water had almost become dry, and attached between several stems of reed, exactly like the nests of most of the Reed Warblers, but of a fusiform shape, from one half to one foot high and from three to four inches in diameter about their middle. These nests, placed at the height of one foot above the level of the water, showed no inlet. The animal, when trying to make use of this refuge, removed that part of the upper covering of the nest, which is less densely interwoven, and is soon entirely concealed between the moss. This part of the nest serves at the same time as a storehouse for some winter provisions, as was proved by some remnants of coleopterous and a few other insects.

The Harvest Mouse, choosing, in dry parts, heaps of grass or straw for a winter retreat, or concealing itself among shrubs or herbs, it is evident that the building of the peculiar sort of winter nests, such as we have described, is owing to a just calculation of being safe against the danger of drowning.

THE AVI-FAUNA OF WIMBLEDON COMMON.

BY EDWARD HAMILTON, M.D., F.L.S.

As a railroad is about to cut through Wimbledon Common and part of Putney Heath, it may be as well before this happens to place on record some notice of the various birds which have been observed to frequent these two open spaces during the space of ten years. Although so near the metropolis, these rural Commons are the haunt of more species of birds than many people would suppose.

The first establishment of the rifle butts did not materially diminish the number of birds; but no doubt since the firing has been extended, and now goes on both summer and winter, and since the Common has been drained, many of the rarer species have been driven away. Nevertheless, an early walk either in summer or winter will still repay the lover of Natural History; his eyes will be gladdened with the sight, and his ears gratified with the note, of many a bird which he would hardly expect to hear within the sound of "Big Ben."

The Kestrel, or Windhover, is or was very common; one or two might constantly be seen hovering in the air in search of its prey. The Sparrowhawk, *Accipiter nisus*, I have occasionally come upon on the lower part of the Common, near Coombe Wood.

The White or Barn Owl I have twice seen in our garden on Putney Hill.

During summer the Red-backed Shrike, *Lanius collurio*, nested both on Putney Heath and on Wimbledon Common. A pair frequented our garden on Putney Hill, and had their nest in a high hedge in an adjoining meadow. A pair or two were always to be seen on the lower part of Wimbledon Common, below the rifle butts. These birds are very late on going to roost. I have noticed the male, when the female was sitting, hawking for beetles, and have frequently seen him catch them on the wing as late as nine o'clock on a summer evening, but a few minutes after the clock struck nine he generally disappeared.

The Spotted Flycatcher, *Muscicapa grisola*, in summer very common in many of the gardens. A pair always built in the ivy round our house, and another pair in an apricot tree against the garden wall. Although delighting to be near the haunts of men, they are jealous of any interference with their nest, and often forsake it if there is too much inquisitiveness.

The Missel Thrush, or Stormcock, is or was also common. We had two pairs near our garden. Being an early songster, he is heard constantly in the stormy months of February and March, and hence the common notion that this bird sings before a storm. The Song Thrush and Blackbird both very common; in winter there are plenty of Fieldfares and Redwings.

Both Wimbledon Common and Putney Heath are or were very rich in the *Sylviidæ*. I have noticed twenty-three species, some of them rather rare. The Hedgesparrow, Redbreast, Redstart, Stonechat, Whinchat, Wheatear, Blackcap, and Nightingale. The Nightingale becomes more rare every year. A few years ago he might be heard in almost every thicket. We had three or four always singing in or near our garden and the adjoining grounds. Besides these, we had the Garden Warbler, Greater Whitethroat, Lesser Whitethroat, Wood Warbler, Willow Warbler, Chiffchaff, and Golden-crested Wren. Of the rarer species, the Grasshopper Warbler might at that

time always be heard in the evening near the reservoir, and I have, by keeping very quiet in one place, very often seen this interesting little bird creeping among the low whins and bushes. The Dartford Warbler is another frequenter of the thickest part of the furze bushes. I have twice seen this bird near the reservoir, and also below the shooting butts in the thick furze, but not since the butts have been established.

Of the *Paridæ*, the Great Tit, the Blue Tit, the Long-tailed Tit, and the Coal Tit are to be found pretty generally distributed. The Pied Wagtail is common, and the Grey Wagtail, *Motacilla boarula*, has been noticed by the side of Beverley Brook, in the lower part of the Common. The Yellow Wagtail and the Tree Pipit and Meadow Pipit are generally to be heard and seen on both Commons. The Sky Lark was formerly very common, but it is getting scarcer every year. The Wood Lark was also to be found occasionally. I noticed it on two successive years, but it is now scarce. The Common Bunting and the Yellowhammer are common enough. A pair of Reed Buntings frequented the lower part of the Common, beside Beverley Brook, in 1874.

The Chaffinch, Greenfinch, House Sparrow, and the Linnet are all pretty numerous. The Hawfinch, *Coccothraustes vulgaris*, is an occasional visitor. I noticed one in my garden in 1870; and the Goldfinch flits across the Common in its spring and autumn migration. The Bullfinch is an occasional visitor. A pair came to our garden in two successive springs, and I have no doubt bred in the neighbourhood.

The Starling is everywhere abundant, building under the stone copings of many of the houses in Wimbledon. They have increased much of late years.

The Common Crow and the Grey Crow have both been noticed on the Common. The Rook is very plentiful. There is a large rookery at Wimbledon, and another at the top of Putney Hill, the latter close adjoining our house. I had for seven years in the spring and summer months—and from the upper rooms we were very close neighbours—a good opportunity of watching the habits of these birds. In the pairing and breeding season they are most affectionate, and yet most pugnacious. They are great cowards, as well as individually brave when in defence. I have seen the hen bird beat off a vigorous attack of four or five or more coming in a body to despoil her nest, and

the moment they saw the male bird flying to the rescue they dispersed in the most sneaking manner with a peculiar caw, quite unlike their usual notes. A bird will never attack or pilfer alone; he must be supported by others, and is apparently quite aware that the attack is debasing and unauthorised. What become of the young Rooks after they have left the authority of their parents? Where do they go? In this rookery the young birds were never shot, yet the nests did not increase to any extent during the seven years—perhaps one or two, certainly not more. In the rookery at Wimbledon the young birds are shot in great numbers every spring, yet the number of nests remain about the same.

The Jackdaw is common enough, but the Magpie is becoming very scarce. A pair built in a high poplar tree near us in the spring of 1870. The Jay with his harsh scream frequented our neighbour's garden and shrubberies, and possibly built there. A pair constantly frequented the thickets at the lower part of the common before the shooting became so prevalent.

During the summer months the Swallow and Martin were common everywhere, and occasionally in the spring the Sand Martin appeared. In 1871 Swifts were extremely plentiful at Wimbledon. They appeared to congregate towards evening, and the air resounded with their shrill squeak or whistle whilst they gyrated and twisted with wonderful rapidity in all directions—now here, now far away, all gone one moment, all around you the next.

Of the Nightjar (*Caprimulgus europæus*), I have noticed sometimes as many as three in an evening walk, and too far apart as regards distance to be the same bird. The Cuckoo is plentiful on all parts of the Common. In 1867 they were very numerous.

In 1872 I saw the Green Woodpecker pretty frequently in my morning ride on the lower part of the Common. The Wryneck has been noted as frequenting both Putney Heath and Wimbledon Common, and the Common Creeper (*Certhia familiaris*) observed among the trees on Putney Heath near the pond.

On November 7th, 1873, a Hoopoe was flushed on Wimbledon Common. The Nuthatch was a regular frequenter of our garden. We were accustomed to put a nut in a particular cleft on one of the acacia trees, and it was amusing to watch the bird seek it

out; he was also very fond of a bone or a bit of meat. The Wren is everywhere; his joyous loud song greeted one in all parts—in the gardens, on the heath, and on the common.

At the end of our garden was a circular pond covered with the white water-lily, and full of fish, small gold carp and others, and a plentiful supply of frogs. The pond was overshadowed by a willow tree. One morning early I was surprised to see a Kingfisher rise from the water, and fly over the next field to a larger pond. This bird came constantly to our pond, I suspect, for the small frogs, as these used to sit on the large leaves of the water-lily, and became an easy prey to the bird.

A pair of Ring Doves, or Wood Pigeons, *Columba palumbus*, built close to our garden, and there were others in the neighbourhood. The soft "coo-coo-coo" of the male bird, and the loud flap of his wings as he rises from his perch and soars up and descends with open wings to the call of his mate in a neighbouring tree, is a pleasant episode in the many and varied movements and voices of bird-life. On the lower part of the common the Turtle Dove has been met with.

The Pheasant, being strictly preserved in Richmond Park and Coombe Wood, is occasionally flushed on the Common. The same may be said of the Partridge, and one morning I saw a brace of these birds running down the gravel-walk in my garden.

Both the Peewit and the Golden Plover have been shot on Wimbledon Common, and I believe the Peewit has bred there. The Heron is occasionally found; two or three of these birds may always be seen at the large pond in Richmond Park, and also at the pond in Wimbledon Park.

The Curlew is an occasional visitor, though very rare visitor; and a pair of Sandpipers, or Summer Snipes, every summer frequent the lower part of Beverley Brook.

Up to 1874 hardly an autumn passed without a Woodcock being shot; and the Common Snipe and Jack Snipe were very plentiful all the winter, three or four couples being often shot in a morning up to the time of draining the Common. Now, I believe, these birds are very scarce. The Landrail has been shot on Wimbledon Common; and the Moorhen and the Coot frequented the large pond in Wimbledon Park.

The Wild Duck and Teal have both been winter visitors.

About eighty species of birds, according to my observations, up to a few years ago frequented these open spaces, and there were probably more; they have no doubt diminished, owing particularly to the erection of the rifle-butts. Should the railroad now be made, farewell to those "feathered songsters"—

"No more the mounting larks * * *
Shall, list'ning in mid air, suspend their wings."

THE LAND AND FRESH-WATER SHELLS OF THE NEIGHBOURHOOD OF YORK.*

BY ROBERT MILLER CHRISTY.

II. TERRESTRIAL MOLLUSCA. UNIVALVES (*GASTEROPODA*).

Fam. LIMACIDÆ.

Arion ater.—Of course very abundant, and is to be found almost everywhere. I have seen them crawling over tussocks of grass on the wettest parts of Strensall Common. It appears to be largely carnivorous and subject to variety. A couple of reddish ones were found beneath a putrefying bird in Overton Wood, and I have seen two of a yellow colour with blue tentacles.

Arion hortensis.—This small slug is found abundantly beneath logs of wood. I have often found it abroad much later than its relatives. Like many other mollusks, it is particularly fond of devouring damp paper.

Limax agrestis.—Abounds to any extent, and comes out in mild weather throughout the winter.

Limax maximus.—Common beneath logs of wood and loose stones. I have often found them with the mantle covered with spots, but with only a very few on the rest of the body.

Further search would certainly reveal other of the *Limaces*, but these are all I have found.

* Concluded from p. 185.

Fam. HELICIDÆ.

Succinea putris.—Abundant and very fine on Clifton Ings, also at Bishopthorpe, beside the Foss, &c. Mr. Hey says, "*Succineas* seem to be very fine about here. My largest specimen is from Skelton Lane." Mr. Jeffreys remarks that they hybernate very early, and I could not see one specimen upon Clifton Ings on September 27th, 1877, though some were found beside the Foss as late as October 6th.

Succinea elegans.—Common at Hobmoor, Askham and other places. Banks of Foss (H.)

Succinea oblonga.—In 1877 I was carefully searching some drift-sand and other rubbish from the banks of the River Foss at Yearsley Lock, when I discovered an exceedingly fine, but unfortunately rather broken and very bleached, specimen of this rare shell. Mr. J. W. Taylor, of the Yorkshire Naturalists' Union, at first doubted whether my naming of it was correct, but upon my sending him the specimen he admitted that it was undoubtedly *S. oblonga*, but he considered it as evidently fossil. It may be so, but I see no reason for considering it anything else than a bleached and weather-worn specimen. He also exhibited it, as a shell new to Yorkshire, before the Leeds Conchological Society.

Vitrina pellucida.—Very general, but not abundant. Found along the Foss, at Hobmoor, Askham, Castle Howard, Knavesmire, Bishopthorpe, Clifton, &c. I got a number of dead specimens in the "Far Wood" at Askham in March, 1876, and live ones in the early part of the following November at various places. The creature is very moist and far too big for the shell.

Zonites cellarius.—Generally distributed. With one exception (*Z. glaber*) we have every species of British *Zonites* round York.

Zonites alliarius.—Rare, though well distributed. A few are found on artificial rockwork in York. It lives in moist woods under moss or dead leaves. Acomb, Skelton, Overton, Strensall, Knavesmire, Castle Howard, and Nova Scotia Plantation. Also common in Mr. Backhouse's hothouses at West Bank. Its unmistakable smell of garlic at once distinguishes it.

Zonites nitidulus.—Commoner than I have ever seen it elsewhere.

Zonites purus.—Scarce, but to be got on the sides of the ditches upon Clifton Ings, Bishopthorpe, and elsewhere.

Zonites radiatulus.—Not a very widely-spread species, but common round York, particularly among the roots of the grass on the lawn at 20, Bootham, and at certain spots in the Far Wood at Askham Bog. Found also in the woods about Strensall, Knavesmire, and Nova Scotia Plantation.

Zonites nitidus.—Rare. Banks of Foss (H.) I have found it at Bishopthorpe and along the side of a small ditch upon Clifton Ings. Bootham collectors obtained it in 1853 at Hobmoor and near the Water-works. Ouse rejectamenta (H.)

Zonites excavatus.—Nowhere common, and rare in the York district. I have obtained it in Nova Scotia Wood, and possess a specimen from some other locality near the city.

Zonites crystallinus.—General. Abounds beside the small ditches on Bishopthorpe and Clifton Ings, in the Far Wood at Askham, one wood at Longwith, &c. As might be expected from its living on the banks, it is very plentiful in the rejectamenta of the Ouse.

Zonites fulvus.—Very well distributed, but far from being common. I have found it at Linton-up-Ouse, Hobmoor, and Clifton, and in Overton, Skelton, Stockton, Strensall, Castle Howard, Askham and Longwith Woods.

Helix aculeata.—Rare. I have never found it myself, but Mr. Backhouse says, "I have found this on the edge of Hobmoor, and have seen it both from Longwith and Queen Elizabeth's Walk;" and Mrs. Corder, of Chelmsford, has some from here. Buttercrambe Moor (H.) Among moss in Nova Scotia Wood (R.) Castle Howard (H.)

Helix aspersa.—Far too common for gardeners. I have been struck with the number of dead shells to be found in holes in the Castle and City walls, and even embedded in the mortar itself.

Var. *tenuis*.—Common.

Helix nemoralis.—Not nearly so common as might be expected. I have found a few at Askham, and many on the nettles and other large plants beside the railway-line crossing Hobmoor. One from this locality was yellowish in colour, with bands almost white. A yellowish white variety was collected about thirty years ago on a hedge-bank at Fulford by a relative of mine (R.) Its habit does not seem to lead it to ascend hedges to nearly the same height as *H. hortensis*, though I once got some fine specimens in such a situation at Copmanthorpe. This species seems to be upon the increase,

as in 1879 Mr. Hey wrote that the typical form was rare, but occurred near Heslington, while at the present time he says, "I am surprised to find the typical *H. nemoralis* is quite common near York now, as I never could find it before last year." Abounds on the Heworth and Bishopthorpe roads (H.)

Helix hortensis.—I am quite convinced that this species and the last should be looked upon as distinct. It is far more abundant in the York district than *H. nemoralis*, and here I have always found them living distinct, though in most of the localities that I am acquainted with in Essex or Sussex, where I have found one I have found both, and generally mixed with the hybrid form, notwithstanding what Mr. Jeffreys states to the contrary. It has a greater propensity for ascending to the topmost boughs of hedges; in fact, throughout the district, hedges seem to be its abode rather than the ground. It commences the ascent early in April, descending again to hibernate for the winter about the middle of October, when most of the specimens have acquired a very bleached appearance and some are almost white. I have also a young specimen that is white with only a slight tinge of yellow. It abounds everywhere, but in greatest numbers in the roadside-hedges between Askham and York, particularly near Dringhouses. The hybrid form is rare, but has been obtained at Hobmoor and at Clifton among *hortensis*, also at Acomb years ago ('Observer'). Mr. Hey says, "In Skelton lane, near York, *H. hortensis* abounds, but *hybrida* is mixed with it. The same mixture occurs at Fulford." In the hedges beside the footpath leading from St. Mary's, York, to the Scarborough railway-bridge *Helix hortensis* lives, and from among them Mr. Richardson and I have, at various times, obtained about twenty-five specimens which can only be referred to *hybrida*, as they have the pink lip unmistakably; but, instead of being yellow or pinkish, as that form is said to be, these were of a dark brown chocolate colour.

Var. *minor*.—A much smaller form which is sometimes found among the rest.

Var. *conoidea*.—Two or three specimens have been found here and there.

Helix arbustorum.—Rare as a general rule. Found at Acomb and about Clifton, but scarce, and the same may be said of Askham and Castle Howard. Near Hobmoor (B.) Common and fine at Fulford (H. & R.) On September 28th, 1877, I happened

to be upon the grassy bank against the outside of the city walls opposite the entrance to the new station. Here I chanced to observe an individual of this species scaling the walls. A search soon showed me that in the roots of the grass below my feet they were swarming, and to such an extent that in one particularly favoured spot, certainly not larger than one square yard, I obtained no less than sixty-four live specimens. Of course this was exceptional, but they teemed over the whole bank, particularly near the top, where they actually crunched beneath my feet as I walked. On looking around one had not far to seek for the cause of this unusual abundance in a limited space. At the bottom of the bank runs a much-used road with the station on the other side of it; at the top are the city walls, which they do not seem to have crossed, as I could find none upon the corresponding bank on the other side, while at one end is the River Ouse, and at the other a broad railway-line. Doubtless the impossibility of migration accounts for the congregation. The raids made upon them by the collectors from Bootham and elsewhere soon caused a thinning of their numbers, both because of those carried away and the trampling down of the nettles, which exposed them to the attacks of either rats or thrushes. At any rate, many recently emptied shells were soon strewn about. Some were of large size, but as a rule they were small.

Var. albida.—Quite one-sixth of the entire lot were of this variety.

Var. flavescens.—In the same proportion as the last-named. One cannot suppose that so many living together can have had a beneficial effect upon them, and their small size and lack of colouring, which the abundance of these varieties show, is thus accounted for. Fulford (H.)

Var. conoidea.—One at Castle Howard and a few by the walls.

Helix cantiana.—Very abundant. Young individuals are whitish and hispid. Common over the whole district, especially near Dringhouses and the whole way between York and Dunnington.

Var. albida.—I have taken a few near Dunnington.

Helix rufescens.—Very scarce near the city. I have never taken it here myself. The 'Observer' states it to have been found both at Skelton and on nettles near Holgate. It occurs under stones near Clifton, but is very scarce (H.) It is, however, common on

the magnesian limestone at Thorparch, very near the border of our district.

Var. *albida*.—Also at Thorparch.

Helix concinna.—Abundant on nettles beside the Foss, and elsewhere. Skelton Lane (H.)

Var. *albida*.—Common among the rest.

Helix hispida.—Less abundant, but common under stones and among the roots of grass.

Var. *albida*.—A few here and there.

Helix sericea.—Near Huntington several years ago, according to a gentleman belonging to the Yorkshire Naturalists' Union.

Helix fusca.—Specimens labelled "York" are in the British Museum; but it must be very scarce. Castle Howard (H.)

Helix virgata.—Less common, of course, than if we were near the sea. I found a single specimen along the roadside between York and Stockton-on-the-Forest. Abundant at Castle Howard, and on the Tadcaster road where the road from Copmanthorpe joins it, but nowhere of large size.

Var. *alba*.—Common at Castle Howard, but none, or only very few, at Copmanthorpe.

Helix caperata.—Generally a common enough shell, but here I am surprised by its almost entire absence. I have found a few at Linton-up-Ouse, and a few in the drift of the river itself. Bleached specimens in ploughed fields beyond Dunnington Common (R.) Near Acomb Wood and near Knapton (R.)

Var. *Gigaxii*.—A few from drift of the Foss (R.)

Helix ericetorum.—A single specimen in the Ouse rejectamenta is all that I have met with.

Helix rotundata.—Everywhere.

Var. *Turtoni*.—Fairly common. It is flat above, but must not be confounded with the young.

Var. *alba*.—Mr. Jeffreys mentions York as a locality for this variety. I have one specimen, found, with many of the type-form, on a large log lying beside the Wiggington road.

Helix pygmaea.—According to the 'Observer,' this was found near York by the Bootham collectors in 1849, but no locality is given. Queen Elizabeth's Walk (B.) Drift of Ouse (R) Askham (R).

Helix pulchella.—Rather rare, but abounds among the roots of the grass on the lawn at 20, Bootham. Rejectamenta of

Ouse, &c. Queen Elizabeth's Walk (B.) Hedge-banks, Heselington (H.) Museum Gardens, very abundant (H.)

I am much surprised at the almost complete absence near the city of the genera *Bulimus*, *Pupa*, *Vertigo*, and *Clausilia*, and do not exactly know how to account for it.

Bulimus obscurus.—Very rare. A single specimen at Castle Howard, some in Foss drift (R.), and two along the Dunnington road, are positively all that I have found or heard of.

Pupa ringens.—I found one in drift from the Foss.

Pupa umbilicata.—Abundant among the roots of the grass at the foot of the wall inside the well-known "Multangular Tower" (of magnesian limestone), in the Museum Gardens,* and still more so on the narrow ledges that run round it at some height from the ground. Drift of Ouse (R.)

Pupa marginata.—Knavesmire ('Observer'). Drift of Foss and Ouse.

Vertigo pygmæa.—Found in peaty sand near Milford Junction about 1845 (B.) Very near my boundary. General (H.)

Vertigo antevertigo.—Same as last species (B.) Ouse drift (R.) Abundant periodically at Askham (H.) Foss drift.

Vertigo angustior.—Found also in peaty sand near Milford Junction about 1845 (B.) Some, presumably from this locality and presented by Mr. Backhouse, are in the British Museum.

Vertigo edentula.—A few are to be found in the Far Wood at Askham Bog. Langwith (B.)

Balia perversa.—Found in Acomb Wood in 1852, according to the 'Observer,' but I distrust the record.

Clausilia rugosa.—I have never met with it nearer to the city than Castle Howard, though Mr. Hey says it is quite common round Clifton. Longwith, Askham Bog, Holgate Lane, &c. (B.)

Clausilia laminata.—Neither have I ever met with this close to the city, though it is found among the Ouse drift. Some specimens from Tadcaster are in the Bootham Museum. Castle Howard (R.)

Azeca tridens.—Some at Thorparch. Castle Howard (H.) Ouse drift (R.)

* If any future collector should discover *Pupa secale* at this spot, he need not record it as a new locality, since I am responsible for its occurrence there.

Zua lubrica.—Abundant everywhere.

Achatina acicula.—Very scarce on the premises 20, Bootham, also on the site of the present Goods Station and the railway excavations about thirty years ago (R.) Mr. Richardson found many fine, though bleached, specimens in 1878 in the gravel-pits at Fulford. They lay in a stratum about four feet from the surface, and in the winter of 1878-9 he obtained some hundreds of specimens from the drift of the River Ouse. Most of these were small, but in good condition. Mr. Hey says it occurs in this situation after heavy floods, but not often.

Fam. CARYCHIIDÆ.

Carychium minimum.—Swarms.

Fam. CYCLOSTOMATIDÆ.

Cyclostoma elegans.—Common on the magnesian limestone, but, so far as I am aware, no nearer to York.

ERRATA.—In May number, p. 182, &c., for “Clifton Jugs,” read “Clifton Ings”; and p. 184, line 8 from foot, for “behind” read “beside.”

THE NATIONAL FISHERIES EXHIBITION.

By THOMAS SOUTHWELL, F.Z.S.

THE Fisheries Exhibition lately held at Norwich has proved such a success in all respects that there can be little doubt it will speedily be followed by similar Exhibitions in other parts of the country, which, irrespective of the benefit certain to accrue from them in a commercial point of view, cannot fail also to be of great interest to naturalists. There doubtless, as at Norwich, will be gathered together not only many remarkable specimens of Fish and Birds from a distance, but such a representative collection of the Fauna of the district as could not otherwise be got together.

Perhaps it may be of some interest to your readers who had not the good fortune to see the Norwich Exhibition to have a few brief notes, from a naturalist's point of view, on some of the more striking objects it contained.

The building in which the Exhibition was held consisted of the spacious Volunteer Drill Hall and a large temporary

"Annexe," 275 feet long by 70 feet wide. The whole was decorated with great taste, the hall being covered with crimson cloth, pannelled out with white and gold colour, and the roof ornamented with handsome trophies of flags. The "Annexe," which was appropriated to the larger exhibits, although not so elaborately decorated, presented a very pretty appearance, the roof and walls being festooned with various forms of nets and cordage, and hung with laurels and artificial flowers. In the ground outside the building were exhibited life-boats, life-saving apparatus, trawl-nets, full-sized boats, Knott's refrigerating van, steam appliances for capstans, &c., and other objects too large to introduce into the building, including the skull of *Hyperoodon latirostris*, described at p. 258 of the present number.

Commencing with the live fish, the most noteworthy feature was a series of fourteen large Aquaria, in which were exhibited a collection of the fresh-water fish found in Norfolk, which was nearly, if not quite, complete. Amongst them were the Three-, Four- and Ten-spined Sticklebacks, Rudd, White Bream, Burbot, Smelt, Crucian Carp, Ruffe, Broad-nosed Eel, and others rare or local, giving at a glance a capital idea of the fresh-water fish fauna of a district peculiarly rich in these creatures. To these were added fine specimens of species which it is sought to naturalise, such as the Golden Tench, American Brook Trout, Lake Trout, and a splendid Grayling, bred by Mr. Louis Buxton, which attracted much attention during the whole of the Exhibition. Of course the fish-breeding establishments were largely represented, including the Norfolk and Suffolk Fish Acclimatization Society, the Marquis of Exeter, Messrs. Andrews, Guy, Littlewood, Capel, and others, some of whom, in addition to the hatching-troughs in operation, showed specimens of the fish reared at their establishments of various ages, and amongst them a fine specimen of *Salmo stomachicus* by Mr. Capel. Interesting as these strangers doubtless are, and some of them very beautiful, too, looking at the subject of their acclimatization purely from a naturalist's point of view, one cannot but feel a shadow of doubt as to the prudence of introducing them into our streams, whilst we have so many valuable native fishes which would be worth cultivating. Great caution should doubtless be exercised in introducing foreigners for whose behaviour in their new home we can have no guarantee, and which, even should they in other respects prove irreproachable,

might deteriorate in quality under the influence of the changed circumstances of their existence. Judging from the amount of success experienced in Norfolk, the results are not encouraging; a few fine Lake Trout have been taken, but *Salmo fontinalis* does not seem to thrive in Norfolk waters; after a time they disappear, in what way is uncertain.

Returning to the Drill Hall, the display of Stuffed Fish was superb, and embraced the collections of the London Piscatorial Society, the Thames Silver Trout Club, Mr. Alfred Jardine, and many other club and private collections, not to mention Mr. Gunn and Mr. Cole, two local birdstuffers, who reaped well-earned honours for their fine displays. Of course in the county of the "Broads," the Pike claims a conspicuous place, and many magnificent specimens adorned the walls. Lady Durrant exhibited the outlines of five Pike taken at Scottow in 1835, the largest of which weighed 38 lbs. and the smallest 28 lbs. Mr. Jardine showed a Pike which weighed 37 lbs. Two others were shown which were taken on the same day in different localities in Norfolk, the one weighing 36 lbs. and the other 30½ lbs.; two such handsome fish probably never before graced the window in which they were exhibited, in the flesh, side by side. To show the great weight to which Pike attain in the clear, well-stocked waters of the Broads, it is worth mentioning that eleven Pike taken in the season of 1880 weighed 281 lbs., and three rods in one day's fishing secured twenty-six fish weighing 154 lbs. Many fine Perch and Rudd, both of which fish attain a great weight in the Norfolk waters, were exhibited; but perhaps the most remarkable of all was a Bream taken at Beeston Regis by Mr. J. W. Cremer, which turned the scale at 11½ lbs. Other Bream there were, which, although they weighed 9¼, 8¾, 7 or 6 lbs., were dwarfed by the side of the Beeston monster. Two other Norfolk fish were worthy of note, not on account of their beauty, for they scarcely seemed to belong to the same species as Mr. Buckland's splendid 70 lbs. *Salmo salar*, but because they are the miserable remains of two of the only three Salmon which, to the knowledge of the writer, have been identified as having of late years been taken in Norfolk waters; one was captured on a flooded meadow at Fakenham, the other in a smelt-net at the New Mills in Norwich. The third Salmon was also taken on some flooded meadows near the city; it measured 43 inches in length, and weighed 17½ lbs., and not-

withstanding its emaciated condition, was cut up and sold in the Fish-market! Some very fine River Trout from the Thames, as well as several Norfolk rivers, were exhibited, showing the large size to which these fish attain when they remain long in undisturbed possession of a deep corner of a mill-pool where the supply of food is plentiful.

Amongst other fish worthy of note were a fine Perch Pike and a Swedish Lake Trout, presented by the late W. A. Lloyd to Mr. Gurney; an Opah caught off Yarmouth, particularly interesting for its immature condition; a Deal-fish caught in Holkham Bay (see *Trans. Norf. & Nor. Nat. Soc.*, iii., p. 95); a beautifully articulated head of the Angler-fish; and many others, of which space will not permit the mention.

Looking round at the beautiful array of bright and handsome cases which lined the walls, one could not help being struck with the conviction that fish-stuffers have yet much to learn and a great deal to unlearn. The very best specimens were more or less stiff, formal, and devoid of life, and nothing could be more incongruous than the conventional mounting generally adopted. Why should Pike be almost invariably represented floating open-mouthed in the air with tufts of reeds, grasses, and other aquatic plants innocently blooming beneath them? Two cases of Scandinavian fishes exhibited by Mr. J. L. Sayer, although not generally very attractive in their appearance, were greatly in advance of the majority, being life-like in position, and although too crowded, all their surroundings were in accordance with their native habitat. It only needed a glance, however, at the fine collection of casts from the Buckland Museum, but especially at the Pike exhibited by Mr. Jardine and the Piscatorial Society, cast by Buckland and painted by Rolfe, each lying in its basket of grass, to show the true method of preserving the accurate representations of these creatures. It must not be forgotten, however, that though the form may be left to the plasterer, a Rolfe is required to give it the colour. There were a few groups of stuffed fish represented as thrown in heaps on the river-banks, which had a good effect.

Considerable space was devoted to Oysters and Oyster-culture, and many varieties of this rare bivalve, British, French, Dutch, Portuguese, and American, were exhibited, both mature and in all stages of growth, from "spat" upwards. There were also interesting exhibits of Mussels, Cockles, and other shell-fish for

which the Norfolk coast is noted, some of which are of great importance as bait for the long-line fishermen.

Construing the class "Birds that prey upon Fish" in the most liberal manner, the Committee secured a very fine collection of birds, the great majority of them from local collectors and the work of local preservers. It is needless to say that Mr. H. Stevenson's exhibit was the gem of the collection; every bird had its own history, and was mounted in the most skilful manner under the critical eye of one who has made the habits of its kind a life-study. The selection from Mr. Stevenson's collection included, amongst others, the White-tailed Eagle, Osprey, Marsh Harrier, Stilt Plover, Black-tailed Godwits, White Stork, Ruffs and Reeves, White-eyed Pochard, Graylag Goose, White-fronted Goose, Pomatorhine and other Skuas, Terns, Bittern, Little Bittern, Smew, Bearded Tit, Pectoral and Broad-billed Sandpipers, Baillon's and Little Crakes, &c. Some of the cases were perfect pictures; witness the Lesser Tern hovering over its wounded mate, who lies with extended wings beside her nest and eggs. Another case representing a snow scene, "Hard times on the Broads," with the frozen-out marsh birds ruffling their feathers, cold and disconsolate. A third case, consisting of Ruffs in full feather, of every shade from black to white, and in every conceivable attitude which these strange birds assume when performing on the "hill." Next to Mr. Stevenson's came Mr. Cole's collection, which contained some beautifully-mounted birds, particularly Waders: the cases of Greenshanks, Curlew Sandpipers, Knots and Turnstones, all in fine plumage, fully entitled Mr. Cole to the special prize of £10 which he received. On the other side of the Hall Mr. Gunn had a very fine exhibit, which took a gold medal. Conspicuous amongst the 250 specimens exhibited was a case representing a fine Otter standing at bay upon a hollow stump; within were seen its young, anxiously awaiting their dinner in the shape of a monster Roach, which their parent, startled by the sound of approaching hunters, held under her foot.

It is impossible to point out all the objects of interest which filled the Exhibition, the whaling-gear from Peterhead, Walrus heads from Spitzbergen, the singularly beautiful flowers and fungi preserved by Mr. English, of Epping, by means of a process known only to himself, and many others. The beautiful fishing-

tackle displayed in the elegant cases, the lovely flies and pliant, well-balanced rods, the graceful models of trawlers and river boats, and a thousand other matters which went to make up the harmonious whole, do not fitly find a place in this notice, nor, however appropriate, will space allow of justice being done to the few but valuable books on fish and fishing, or the grand pictures by Van Hacken, exhibited by the Fishmongers' Company with many others, amongst which Mr. Mundella's presentation picture by Rolfe was conspicuous; there were also several other beautiful pictures by that inimitable painter of the finny tribe. There was one other feature in connection with the Exhibition which proved very attractive; during its continuance a series of lectures was given on subjects connected in some way with the objects exhibited; it is only necessary to say that Professor Huxley discoursed on the "Herring," Mr. Jex on "Deep-sea Fishing," Mr. R. B. Sharpe on "Fish-eating Birds," and Mr. H. N. Moseley on "Deep-sea Dredging"; and it will be readily understood that the lectures were both attractive and instructive.

The Exhibition at Norwich, the first of its kind in this country, has been a thorough success from its beginning to its close, and it is only to be hoped that future exhibitions of the same kind, founded upon the experience there obtained, will be even more successful, and of still greater practical utility.

ORNITHOLOGICAL NOTES FROM MAYO AND SLIGO.

BY ROBERT WARREN.

THE intensely cold winter and cold and backward spring have not prevented some of our summer visitors from putting in an early appearance this season; and although on the nights of the 27th, 29th and 30th of March, the thermometer registred six, five, and three degrees of frost respectively, yet a pair of Sandwich Terns were seen and heard on the river here on the 31st, but the main flight did not arrive till some days later.

I heard the first Chiffchaff about the place here on the 1st of April, but the temperature falling with the easterly winds, and the nights being frosty up to the 6th, checked its singing for several days, though I frequently remarked it while silent,

hunting for insects along the sheltered and sunny side of the hedges. Chiffchaffs appear more numerous and more generally distributed about the neighbourhood this season than usual, and I heard several singing in the plantations of Scurmore, a place I never knew them to frequent previously.

The Willow Wrens were neither seen nor heard until the 13th April, and Swallows on the 18th. Whimbrels were heard on the 29th, and became very numerous a few days afterwards, as many as thirty birds being occasionally seen together on the sands.

Common Terns appeared on the 2nd May. The Corn Crake was heard on the 6th, and the Cuckoo on the 7th. Swifts and Spotted Flycatchers were seen on the 9th, but I did not hear a Whitethroat until the 12th, though I was carefully watching their favourite hedges.

In contrast to the above-mentioned arrivals, some of our winter birds are still remaining. On the 14th May, having gone down the river and estuary to Bartragh, I observed over two hundred Godwits on the sands, and though I watched them carefully through a glass for some time I was unable to perceive a red-breasted bird amongst them; but I remarked a few Knots scattered amongst the flock. Further down the channel near Scurmore I saw thirty-seven Red-breasted Mergansers. Close to Bartragh I came across three Red-throated and a Great Northern Diver. These Divers looked very handsome in their fine summer plumage, and as I had an excellent opportunity for observing them, I took plenty of time and enjoyed the sight very much, for it is not often one can observe these birds in their summer plumage. I took especial care in watching the Great Northern Diver, and though I caused him to dive more than a score of times I could see nothing unusual in his mode of procedure.

One of the sad effects of the late severe weather in this district is the complete extermination of the Song Thrush, and stranger still, of the Missel Thrush also. The Song Thrushes last summer were just beginning to recruit their losses of 1878-9, but now there is not one to be heard or seen in this neighbourhood, and from enquiries I have made about the well-wooded demesnes near Enniscrone, Ballina, and Killala, I have not been able to hear of a bird of either species being heard singing this

season. So that in a district of country extending for twelve miles in length and varying from two to four miles in breadth, the result of my careful observation and enquiries has been that not a single individual of either species has been seen or heard this spring.

A small rookery was commenced here last year, and the cause of the birds settling down so far from the old rookeries (fully a mile, and a mile and a half from the two nearest) may, I think, be attributed to the Rooks being so well fed here during the late severe winters. In the winter of 1878-79 large numbers of Rooks came daily to be fed with the poultry in the farm-yard, and roosted every night in the adjacent trees; but as the weather became milder and food more abundant they went off, leaving after them half-a-dozen weakly-looking birds. Late in the spring a pair of these birds began carrying sticks to an old Magpie's nest, and frequented it for a few days, when they gave up building, leaving the nest altogether, and made no further attempt, that I could see, at building another nest. These few birds remained about the yard and lawn all through the summer, and when the severe weather set in were joined by numbers of others, which, as usual, fed in the yard with the fowls throughout the winter until the spring season, when they all, except three birds, left for the neighbouring rookeries. These three birds, however, kept close about the yard until the 14th April, when a pair of them took possession of the old Magpie's nest and built in it; and the third bird, in about a week after, finding a mate, also built a nest close by his companions. The young of the two nests were reared safely, and with their parents kept close about the place the entire season, roosting on the trees near the yard; there, as usual when the hard weather began, they had plenty of companions feeding with them in the yard, some of which must have joined the members of the old colony this spring, for now there are eight nests built in the little grove.

OCCASIONAL NOTES.

WATER RATS CARRYING THEIR YOUNG.—Walking by the side of a stream early in May, I saw a large Water Rat carrying in its mouth a half-grown young one. While swimming the young rat was held well up out of the water; sometimes, however, the old one would leave the water and cross a bit of mud, still holding the youngster, which while in sight it never once dropped. It presently, however, disappeared round a bend, but in a few minutes I again saw it returning without its burden, which had doubtless been lodged in a place of safety. She seemed in a great hurry, and was perhaps going back for another young one. Probably the nest had in some way been disturbed, or was threatened with danger, and the family were removing to safer quarters. It seems strange, however, that the youngsters, which, judging by the size of the one I saw, were certainly pretty well half-grown, could not be trusted to follow their dam without help. The removal of the whole family by this means must have been no slight undertaking, as the distance she carried the young one, while in my sight, was at a rough guess from twenty to thirty yards, and she may have carried it some way before I noticed her; probably there were from four to six of them to move, that being, I believe, about the average number in a litter. In April, 1871, I found three nests, in one of which the young were no bigger than full-grown house mice, but were covered with hair and could swim and dive well. The glossy fur of this little animal receives reflections very readily, and is I think a means provided for the safety of its possessor. Many persons must have noticed how difficult it is to catch sight of a Water Rat sitting perfectly still on wet mud or in some similar situation, by reason of the fur receiving by reflection the general tint of its surroundings. The same may be said of the Otter.—G. T. ROPE (Blaxhall, Suffolk).

[The fact that Water Rats carry their young is not noticed by Bell in his 'British Quadrupeds,' and is probably not generally known. We satisfied ourselves upon the point, however, many years ago, and have several confirmatory notes by other observers. See 'The Field,' May 5th, May 27th, and June 3rd, 1876.—ED.]

WILD ANIMALS PAID FOR BY CHURCHWARDENS IN YORKSHIRE.—In looking over the minute-book of the churchwardens' accounts for the parish of Bolton Percy, I came across some curious entries which may interest some of the readers of 'The Zoologist.' The book begins in the year 1788, and from that date, till 1830, I find various entries for vermin-killing. At first these entries are annual, and they gradually become

fewer, till, in 1830, they cease altogether. I extract a few of these entries as specimens: the first is (1788) "4 Foxes and a Foulmart, 4s. 2d." (1789), "4 Foulmarts, 8d. Paid for a Foxes head, 1s. For a Bever do. 2d." For Bever I should imagine we must read Otter, since the parish is near the Wharfe, and an Otter head is entered further on. Payments for Foxes and Foulmarts occur annually till 1798, when 2 Foulmarts cost 4d. each; 3 Foxes, 3s.; 1 Otter, 1s.; total, 4s. 8d. Foulmarts must have grown scarcer, for, in 1795, the price was raised from 2d. to 4d., and an Otter (*sc.* Bever) from 2d. to 1s. In 1816 we find 7 Fox heads entered; in 1829 is the last entry, "2 Foxes heads, 2s." There are some other curious entries, *viz.*, in 1792, "To turning Dogs out of church, £1"; and, in 1819, "Pd. G. Gill, dog-whipping, £1."—C. FULLERTON SMITH (Bolton Percy, Yorkshire).

ON A SKULL OF *HYPEROODON LATIFRONS* (ROSTRATUS?) FROM THE NORTH SEA. — A very perfect skull of this Whale (minus the lower mandible) was dredged up by the smack 'Gladiator' on the Great Fisher Bank on the 15th March, 1881, from a depth of thirty-six fathoms, and landed at Grimsby, whence it was sent as a present to a gentleman residing in Norwich, who exhibited it at the National Fisheries Exhibition, recently held in that city, and afterwards presented it to the Norfolk and Norwich Museum, where it has been added to the interesting collection of Cetacean remains already possessed by that institution. The skull in question, which, as beforesaid, is unfortunately without the lower mandible, although completely divested of all the integuments, is still so fresh as to be very full of oil, although the presence of colonies of marine animals (Crustacea, &c.), in the cavities shows that it has long been stationary at the bottom of the sea. The following are the principal measurements:—Total length of skull, 69 inches; height of occipital portion, measured in a straight line from the ground, 26 inches; height of maxillary crests, measured in the same way, 33 inches; breadth of the maxillary crests in front—left, 8 $\frac{1}{4}$ inches; right, 8 $\frac{1}{4}$ inches. This skull corresponds well with Gray's figure in the Zoology of the 'Erebus' and 'Terror.' The occipital portion appears insignificant in comparison with the maxillary crests, which will be seen, from the foregoing measurements, to exceed it in height by seven inches; they are very much thickened and reflexed internally, presenting a broad and very much roughened front; the inner surfaces, where the maxillary bones approach each other, are very irregular, the inequalities corresponding in the two crests, so that the space left between them is about sufficient to permit the hand to be introduced. Very little is known of the animal to which this skull belongs; from its cranial peculiarities, it has been described as distinct from *Hyperoodon rostratus*, the Common Beaked Whale, in which the maxillary crests do not exceed in height the occipital

portion of the skull, and are sharp-edged, Dr. Gray even going so far as to create for it a new genus (*Lagenocetus*); but it is now generally held that the excessive development of the maxillary bones is a sexual peculiarity, and that Eschricht's belief that the form known as *H. latifrons* is really the male of *H. rostratus* will prove to be correct. The sex of the individual from which the skull now recorded was derived not being known, of course no fresh light is afforded by it towards settling the point at issue, nor can this be done until many more specimens of both sexes and various degrees of maturity have been examined, or till a female of the *latifrons* type, or an adult male of the *rostratus* type, is met with. —T. SOUTHWELL (Norwich).

SUPPOSED OCCURRENCE OF THE CRANE ON THE PROMONTORY OF HOWTH, NEAR DUBLIN.—On the 18th of January last, during the severe snowstorm, my cousins, the Messrs. MacDougall, of Howth, while wildfowl shooting on the southern side of the Hill of Howth, saw a large bird resting on the snow, a rocky point by the seaside. At first they thought it was a Heron, but, upon a nearer approach, it arose, and, circling upwards to a considerable height, flew northwards over the hill. They were close enough to see its colours, and describe it as having a black head, and the rest of the body greyish blue. But what chiefly attracted their attention was its enormous size, about "twice that of a Heron," its appearing to have no neck (from the head being thrown back), and the apparent appendage to the tail caused by the legs being thrust out straight behind. Upon measuring its foot-mark in the snow, from the hind to the tip of the middle toe, it was five inches and a half in length. They followed the bird over the hill and watched for it afterwards, but it appeared no more. I think there can be no doubt that this bird was a Crane, which is an extremely rare visitant to Ireland. Thompson mentions two having been obtained (one in 1834, and another in 1846), and quotes from Smith's Histories of Waterford and Cork to the effect that flocks were seen in those counties during the great frost of 1739. Two, which are now in the Museum of Natural History in Kildare Street, were obtained in Kerry about twenty years ago. Two, which are now in the Museum of Science and Art, Kildare Street, Dublin, were recently transferred from the collection of the late Natural History Society of Dublin, in which they had been preserved for many years, having been obtained from the South of Ireland.—HENRY CHICHESTER HART (Dublin).

ORNITHOLOGICAL NOTES FROM THE ISLE OF WIGHT.—During the past winter wildfowl were unusually abundant on the Solent, but being much disturbed and shot at were very wild. Vast flocks of small birds were seen passing over the island in a north-westerly direction, many perishing by the way, being washed up by the tide, as reported in the local papers.

Few rare birds have been heard of, although many may have appeared without being noticed, there being few persons in the island, taxidermists excepted, who have a fair knowledge of birds. Messrs. Smith, of Newport, inform me that a Common Buzzard, a male, was sent to them. It was shot at Steephill, in this neighbourhood, on the 22nd January, while seated on a wall,—the ground being covered with snow,—preying on a Starling, of which species there is a colony in the ivy-clad walls of the Castle. On dissection the remains of a Thrush was found in the stomach. Two Thick-knee Plovers were shot at Atherfield on the 5th November by a tradesman of this town, some lads having observed them in a ploughed field; though thus exposed they were readily approached, and on taking wing one was brought down at the first discharge; the other having alighted was stalked and also secured. In the gizzard of the one examined grain only was found. A female Great Crested Grebe was shot on January 20th; the stomach contained a mass of feathers—not an uncommon thing, it appears, with birds of this family, though difficult to account for when not moulting or nesting, as in this case. Macgillivray says that a great quantity of feathers was found in the stomach of a Red-necked Grebe. A Heron, I hear on good authority, was captured when “napping,” or half-starved, by a brook-side, but released after a week’s confinement, being found too troublesome a charge. I am informed by Messrs. Smith that on dissecting two birds of this species some time back, a trout about nine inches in length was found in one, and the stomach of the other contained a fish eleven inches long. Early in January a male Snow Bunting, in adult plumage, being mostly of a white and cream-colour, was shot at Westover, in the northern part of the island, by a gamekeeper. An albino or yellowish white Greenfinch was shot on January 3rd at Yarmouth. I hear that a Green Woodpecker was shot more than a year ago near Newtown, not far from Parkhurst Forest; my informant saw it at the time, and knows the man who shot it. Woodpeckers are rarely met with in the island; two or three instances only have occurred to my knowledge. Though Rooks were seen in their nesting-trees for some weeks, seemingly none the worst for snow or frost, they were not observed to repair their nests till March 1st.—HENRY HADFIELD (Ventnor, Isle of Wight).

SMALL BIRDS CARRIED BY CRANES IN THEIR MIGRATIONS.—Dr. Van Lennep, in his ‘Bible Customs in Bible Lands,’ speaking of the great numbers of small birds which inhabit Western Asia, as compared with Europe and North America, explains the circumstance by the fact that “even those of feeblest wing have an easy road from Palestine, Syria, and Mesopotamia, by the Isthmus of Suez, and over the narrow Red Sea, to their winter quarters in Tropical Africa, whilst Nature has provided them with *extraordinary means* of conveyance from Asia Minor southward across

the Mediterranean. . . . The Swallow, and many other birds of similar powers of flight, are able to cross over the entire breadth of the Mediterranean, especially by taking advantage of a favourable wind. But many birds are quite incapable of flying over a surface of 350 miles from headland to headland across the Mediterranean without alighting, and would require many days, and even weeks, to perform the trip through Syria and Palestine. Such are the Ortolans, Beccaficos, Wren, Titmouse, smaller thrushes and finches, with a hundred other diminutive specimens of the feathered tribes, . . . and as the severity of the winter would be fatal to them, not only in Asia Minor but even in Syria and Palestine, He who is ever mindful of the smallest of His creatures has provided them with means of transportation to a more genial clime. Many of them, indeed, find their way downward from Palestine into Arabia and Egypt, but this would be difficult, if not impossible, where lofty mountains and broad seas intervene, and to meet such cases *the Crane has been provided*. . . . Most of these birds are migratory. In the autumn numerous flocks may be seen coming from the north with the first cold blasts from that quarter, flying low, and uttering a peculiar cry, as if of alarm, as they circle over the cultivated plains. Little birds of every species may then be seen flying up to them, while the twittering songs of those already comfortably settled upon their backs may be distinctly heard. On their return in the spring they fly high, apparently considering that their little passengers can easily find their way down to the earth."

[Can any correspondent furnish confirmatory evidence of this?—Ed.]

PIED FLYCATCHER IN PERTHSHIRE,—A male, still in winter plumage, was shot here on 23rd April. It had been observed for about a week, and was evidently recognised as a stranger by the other small birds, by whom it was somewhat mobbed. This species has only occurred in Scotland as a rare straggler, the last occurrence I find recorded being also a male, obtained at North Berwick on 23rd May, 1872 (Lumsden, Proc. Nat. Hist. Soc., Glasgow, ii., p. 192).—J. J. DALGLEISH (Dumbarton Grange, Culross, Perthshire.)

[Other reports have reached us of the occurrence of this little bird in East Sutherland and Rosshire during the present spring.—Ed.]

WHITE LANDRAIL NEAR EXETER.—I have been given, for this Museum, a Landrail shot at Pinhoe, near Exeter, on May 3rd. It is entirely of a dirty white or dove-colour. The irides were bright red. Another specimen, in ordinary plumage, has also been given to me. It was picked up dead on the 7th inst. in one of the "greens" or enclosures, in front of the houses on Southernhay, in this city. One of its wings was broken close to the body, perhaps by flying against some object. A Landrail was brought to me May 8th, 1870, which had killed itself by flying

against the telegraph-wires on the Exmouth Railway, near Topsham. Last September and October a good many were killed near Exeter, and I saw four specimens in the poulterer's shops.—W. S. M. D'URBAN (Albert Memorial Museum, Exeter).

OSPREY IN DORSETSHIRE.—A few days ago (May 3rd), in company with my eldest son, I had the pleasure of seeing a fine Osprey sitting on the parapet-wall of a bridge in Morden Park (adjoining the parish of Bloxworth). It flew slowly away when we were about a hundred yards distant, taking the direction of the Wareham Estuary. We have been twice since to Morden Park, hoping to catch another sight of this rare visitor, but without success, though it has been seen there on more than one occasion since by the gamekeeper, who lives in the park.—O. P. CAMBRIDGE (Bloxworth Rectory, Dorset).

AN UNIDENTIFIED OWL SHOT IN IRELAND.—In the hope that some one of your readers may help me to identify the bird, I send you a description of an Owl in the collection of Dr. Burkett, of Waterford, shot at Behe Lake, Co. Waterford, January, 1851. It seems too small for the Eagle Owl, and differs in other respects from that species. Beak black. Irides (artificial) yellow. Tufts on top of head pronounced. Top of the head, tufts, upper part of back, and wing-coverts, dark brown, the larger feathers mottled at each side about the middle with light yellowish brown, and those feathers on the top of the head and upper back having also on each side near the end a spot of white. Lower half of back and wing-coverts also dark brown, mottled at sides with pale or yellowish brown, those feathers on the *outer* wing-coverts having a large spot of white near the end of the outer web (like an ocellus) surrounded with dark brown, with a small spot of white or pale yellowish brown half down the feather, sometimes right across it, sometimes on the outer web only; these series of large spots of white and buff becoming more numerous on the long underfeathers of the scapulars, where they occur on both webs and run into bars. Rump and upper tail-coverts dark brown, mottled and barred with buff and white. Thus the large white spots are most conspicuous on the upper back and outer wing-coverts (from carpal joint outwards), while the irregular bars are on the upper tail-coverts. Primaries, secondaries, and tail-feathers, dark brown, with bars of paler brown and white, which bars are mottled with the darker brown, except on the inner webs, where they run into white. Tertiaries with mottled bars of the buff or white. Cere covered by feathers of facial disk. The latter is mottled or barred with dark brown on a ground of buff or dull white. Lower margin of disk having on each feather several small bars of dark brown. Throat white. Feathers on upper breast dark brown, having a large spot of white on each web towards the end, the middle portions of the feathers mottled transversely with

reddish or yellowish brown, but the tips of the feathers unmixed dark brown, forming dark spots on the breast. On the lower breast, flanks, belly, legs, and under tail-coverts the markings run into dark brown bars on a ground of dull white or pale buff, these bars becoming narrower on legs and under tail-coverts. Claws black. Total length, $18\frac{1}{2}$ to 19 inches; carpal joint to longest quill-feather, $12\frac{1}{4}$ inches: first quill-feather much shorter than second, the second shorter than third; third and fourth nearly equal, but the fourth the longest in the wing.—R. J. USSHER (Cappagh, Cappoquin).

LONG-EARED OWL BREEDING IN DORSETSHIRE.—The Long-eared Owl breeds every year in Morden Park (near Bloxworth), but until a few days ago (May 3rd) I had never succeeded in obtaining its eggs. The nest was made in an old Squirrel's "drey" near the top of a Scotch fir, and contained three perfectly fresh eggs.—O. P. CAMBRIDGE (Bloxworth Rectory, Dorset).

THE BOAR-FISH AT EASTBOURNE.—Four specimens of the Boar-fish, *Capros aper*, have recently been taken on the shore here. In three instances they were captured alive.—CHARLES FORAN (Marshfield House, Eastbourne).

INTRODUCTION OF THE BLACK BASS INTO ENGLAND.—There seems to be a prospect that we may have, in the course of time, a new fish in England, the Black Bass, which is esteemed a delicacy in Transatlantic bills of fare. An attempt has been made to acclimatise this fish, and those who are interested in the scheme appear to have hopes of success which, perhaps, may not be premature or ill founded. The Bass that have been imported were brought from the Delaware by an agent of the Marquess of Exeter. On his first journey he started with 250 of the fish, and after nursing them with the greatest care during the voyage, cooling the water with ice, pumping in air, and taking every precaution, 153 of the number originally caught reached England, and were turned into Whitewater Lake, near Stamford. Most of the lost fish perished whilst crossing the Gulf-stream, when the temperature of the water in which they were could not be below 78° , the atmosphere being 80° for nearly five days. On the second visit the agent started from America with 1200 of the fish, and was able to bring 812 to the Lake, where most of them were turned out to join their brethren. Where the others were placed does not appear. Not any of those in Whitewater Lake have been caught yet, but two of them were found dead in a pipe where they had got jammed, the pipe supplying a filterer, where they could get in but could not get out. These two were some half-pound in weight, considerably heavier than when they were put in; and so it is

naturally supposed that the rest are thriving. The first lot that were turned out will be three years old in April, when they are expected to begin to breed. Any really palatable addition to the scanty list of fish used by English cooks will be a boon, and the result of Lord Exeter's experiment will be watched with considerable interest.

POISONOUS QUALITIES OF STARFISH.—Mr. Parker's note (*ante* p. 214) reminds me that when staying in one of our south-coast fishing towns, a year or two ago, we complained of the noise made each night by our neighbours' cats. Our landlord made very short work of the nuisance, by simply gathering and cutting up some common "Five-fingers" Starfish, and having fried them in dripping the pieces were judiciously placed where they might be found by our enemies. In the course of a few days dead cats were more numerous than living ones in *that* neighbourhood.—JOHN T. CARRINGTON (Royal Aquarium, Westminster).

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ZOOLOGICAL SOCIETY OF LONDON.

May 3, 1881.—Prof. W. H. FLOWER, LL.D., F.R.S., President, in the chair.

Prof. F. Jeffrey Bell read the first of a series of papers on the systematic arrangement of the *Asteroidea*. In the present communication the author directed attention to the large number—more than eighty—of described species of the genus *Asterias*, the subdivision of which had never yet been attempted. After a list of the species, with reference to one description of each, and a list of the synonyms, he proceeded to describe and make use of certain characters as an aid in the classification of the species; the number of rays, of madreporiform plates, and of ambulacral spines forming the more important, and the form and character of the spines the less important points. The author then proposed a mode of formulating results by the use of certain symbols; and concluded by describing five new species.

A communication was read from Dr. M. Watson, containing some observations on the anatomy of the generative organs of the Spotted Hyæna, in continuation of a previous paper on the same subject.

Mr. Oldfield Thomas read a memoir on the Indian species of the genus *Mus*. The present paper was an attempt to clear up the existing confusion in the synonymy of the Indian species of this genus, of which the author recognised about nineteen as valid.

A communication was read from Mr. Edgar A. Smith, containing remarks on some specimens of *Cypræa decipiens*, lately received by the British Museum.

A second paper by Mr. Smith contained the descriptions of two new species of shells from Lake Tanganyika.

Capt. G. E. Shelley read a paper containing an account of seven collections of birds recently made by Dr. Kirk in the little-explored regions of Eastern Africa. Two new species were proposed to be called *Coccytes albo-notatus* and *Urobrachya Zanzibarica*.

Mr. Arthur G. Butler read a paper on a collection of Lepidoptera made in Western India, Beloochistan, and Afghanistan by Major Charles Swinhoe. The collection contained examples belonging to three new genera and fifteen new species.

May 17, 1881.—Dr. GÜNTHER, F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of April, 1881, amongst which special attention was called to an Indian Darter, *Plotus melanogaster*, received in exchange from the Zoological Gardens, Calcutta; a female Beisa Antelope, *Oryx beisa*, born in the Gardens April 12th, believed to be the first example of this Antelope that had been bred in captivity; and a Mountain Ka-ka, *Nestor notabilis*, transmitted as a present to the Society by Dr. A. de Lautour, of Otago, New Zealand.

Mr. Selater exhibited and made remarks on examples of four Parrots of the genus *Chrysotis*, from various islands of the Lesser Antilles.

A communication was read from Mr. Carl Boeck, in which he gave an account of the Land and Fresh-water Shells collected in the highlands of Padang, Sumatra, and in the Eastern and Southern parts of Borneo, during his travels in those districts. Eight new species were described.

A communication was read from Mr. G. B. Sowerby, jun., containing descriptions of eight new species of Shells from various localities.

Mr. W. A. Forbes read a paper on the anatomy and systematic position of the Jacanas (*Parridæ*), which he showed were in no degree related to the Rails, but form a separate group to be placed amongst the Plovers and allied birds (*Limicola*). The author also called attention to the peculiar form of the radius in the genus *Metopidius*, which is not developed in the other genera of this group.

A communication was read from Mr. L. Taczanowski, containing the description of a new species of Weasel from Peru, proposed to be called *Mustela Jelskii*, after its discoverer.

A communication was read by Mr. W. F. Kirby, containing a description of the Hymenopterous Insects collected in Socotra by Prof. Bayley Balfour. Of these two were apparently new to science.

A communication was read from Mr. Francis Day, containing remarks on the range of *Apogon Elliotti*.—P. L. SCLATER, *Secretary*.

ENTOMOLOGICAL SOCIETY OF LONDON.

May 4, 1881.—H. T. STANTON, Esq., F.R.S., &c., President, in the chair.

Mr. R. W. Fereday (Christchurch, Canterbury, New Zealand), hitherto a Corresponding Member, and Mr. Charles Foran (Marshfield House, Eastbourne, Sussex), were balloted for and elected Ordinary Members of the Society. Mr. James Edwards (Bracondale, Norwich), was elected an Annual Subscriber,

Mr. Roland Trimen exhibited and made remarks on the following Lepidoptera, all of which had been taken in Natal by Col. J. H. Bowker:—

The sexes of *Pieris Saba*, Fab., captured in copula near the Umgeni in January last. Mr. Trimen remarked that, as long ago as 1837, Boisduval had united the strikingly dissimilar sexes of this Pierid; but he was not aware that there was any record of positive evidence in support of that lepidopterist's opinion. He was especially pleased that Col. Bowker should have been the captor of this pair; as in spite of his intimate acquaintance with the extraordinary sexual disparity prevailing among butterflies, he had been very sceptical as to the identity of *Pieris Saba*, Fab. (the female form, which is more black than white) with *Pieris orbona*, Boisd. (the male form, which is almost entirely white). Mr. Trimen further expressed his opinion that the black and white female of this butterfly was probably modified in mimicry of a common and evidently protected diurnal moth, *Nyctemera apicalis*, Wlk., which frequents the same localities.

The sexes of *Diadema mima*, Trimen, taken paired at D'Urban on February 11th last. This butterfly is an accurate mimic of *Amauris Echeria*, Stoll., copying the variety with white-spotted fore wings, which is common in Natal.

The larval cases, pupæ, and imagos of a *Tinea* (apparently *T. gigantella*, Stainton), found inhabiting the hoof of a horse. Col. Bowker writes that he sent to England a hoof of the troop-horse killed with the Prince Imperial in Zululand in June, 1879, to have it mounted as an inkstand. Since the return of the inkstand he had been obliged to take it to pieces to get rid of the moths, which were still emerging as late as February last. *Tinea gigantella* (originally described by Mr. Stainton from specimens brought by Mr. Trimen from South Africa in 1859) is considered by the founder of the species as synonymous with Zeller's *Scardia vastella*, whose larva is noted as feeding on the horns of antelopes. The closely allied *T. orientalis* has also been recorded by Mr. Stainton (Ent. Mo. Mag., xv., 133) as having, in all probability, been bred from buffalo-horns brought from Singapore.

Mr. Stainton remarked that it would be interesting to know whether these *Tineæ* fed on the horns or hoofs of *living* animals. He believed Lord Walsingham had prosecuted enquiries on the subject with at present a negative result.

The Secretary read a letter received from the Colonial Office relative to the appearance of *Phylloxera vastatrix* on the vines of Victoria, also a letter addressed to the Colonial Office, from the Royal Gardens, Kew, by Mr. W. T. Thiselton Dyer, on the subject, and laid the minutes of evidence taken by a select committee of the Legislative Assembly, received as an enclosure, on the table.

The President stated that this communication had been considered by the Council of the Society, and they had resolved that Messrs. Trimen, M'Lachlan, and Fitch be appointed a Committee to investigate the matter and report.

Mr. Arthur G. Butler communicated a continuation of his "Descriptions of new Genera and Species of Heterocerous Lepidoptera from Japan," treating of the *Noctuæ*.

Mr. Roland Trimen read a "Note on the capture of the paired sexes of *Papilio Cenea*, Stoll (*P. Merope*, auct.), in Natal," and exhibited the specimens, which had lately been received from the captor, Col. Bowker.—
E. A. FITCH, *Hon. Sec.*

NOTICES OF NEW BOOKS.

The Cat: an Introduction to the Study of Back-boned Animals, especially Mammals. By ST. GEORGE MIVART, Ph.D., F.R.S. 8vo, pp. 530, with 200 illustrations. London: Murray. 1881.

THE theatre-going portion of the British public has for some months past been exercised in mind in attempting to solve the question, "Where is the Cat?"

The query, "what is a Cat?" propounded by Professor Mivart in this his most recent work, is by no means so easy of solution. Indeed, to answer it satisfactorily involves an explanation which occupies more than 500 closely printed pages! To what end, it may be asked, is so long a discourse directed, and why has the author selected for his theme so familiar an animal as the Cat? These questions are answered by anticipation in the Preface.

The natural history of animals may be written in two ways. They may be treated as one whole, their various powers and the more general facts as to their organisation being successively portrayed as they exist in the whole series; or one animal may be selected *as a type* and treated of in detail, other types successively more divergent in structure from the first being described afterwards. In following the latter mode we may either begin with one of the most simply organised of living creatures, and gradually ascend to the highest and most complex in structure; or we may commence with the latter, and thence descend to the consideration of the lowest kinds of animated beings. Professor Mivart has followed the latter course.

The bodily structure most interesting to man, his own, was the first studied (directly or indirectly), and the names now given to different parts of the body in the lower animals have been mainly derived from human anatomy. The descending course is also that which seems on the whole preferable, for, by commencing with the class of animals to which man belongs, we may proceed from the more or less known to the unknown, and from that which is comparatively familiar to that which is strange and novel.

Having then chosen to begin the study of animals with that class to which we belong, it might perhaps be expected that man himself might be selected as the type, but, as the author points out, a fresh description of human anatomy is not needed, and would be comparatively useless to those for whom this work is intended, namely, persons who are interested in the zoology of beasts, birds, reptiles, and fishes, but who are not concerned in studies proper to the medical profession.

The problem then has been to select as a type for examination and comparison an animal easily obtained and of convenient size, —one belonging to man's class, and one not so different from him in structure but that comparison between it and him may readily suggest themselves to the student.

In the common Cat we have just such an animal as is required for the purpose, and by studying its zoology, as taught by Professor Mivart, the student will obtain the knowledge of anatomy, physiology, and kindred sciences necessary to enable him to study profitably the whole class to which it belongs—the class of *Mammals*.

In order to give an idea of the scope of the work, and of the thorough manner in which all the details have been treated, we need only refer to the headings of the chapters, which are as follow:—The Cat's general form; the Skin and its Appendages. The Skeleton of the Head and Trunk. The Skeleton of the Limbs. The Muscles. The Alimentary System. The Organs of Circulation. The Organs of Respiration and Secretion. The Nervous System and Organs of Sense. Development. Psychology. Different kinds of Cats. The Cat's place in Nature, and the Pedigree and Origin of the Cat.

To the general reader, no doubt the two most interesting chapters will be those on the origin of the domestic Cat, and on the different kinds of Cats. In the first of these Professor Mivart favours the opinion that our domestic Cat is of Egyptian origin, and quotes some interesting notices illustrative of its great antiquity. He rejects the view that it has descended from the European Wild Cat, now rarely met with in the British Islands, for, he argues, had this been so, it would have been easily procurable, and would not have been so highly valued as it was even so late as a thousand years after the Roman invasion. For, while the domestic Cat was rare and therefore precious, the Wild Cat continued to be common during the Middle Ages.

With regard to the present existence and distribution of the Wild Cat in the British Islands, we have no doubt Professor Mivart would have modified some of the views which he has expressed had he perused the statistics on the subject recently published by Mr. Harvie Brown in this Journal.*

We cannot concur in the opinion that the stories of Wild Cats in Ireland (where *Felis catus* is unknown) probably refer to the progeny of domestic Cats run wild; for we are satisfied from all we have heard and read on the subject that the Irish Wild Cat, so called, is the Marten. *En passant*, we may point out a mistake which occurs in a foot-note on page 6. It was not Mr. Mills but Mr. A. H. Cocks who succeeded in getting the wild and domestic Cat to breed together in confinement, and who ascertained the curious fact that the period of gestation in the Wild Cat is sixty-eight days, or twelve days longer than the ordinary gestation

* 'Zoologist,' 1881, pp. 8—23.

of a tame Cat,* a circumstance which is the more remarkable as there is little doubt that the two forms can interbreed freely.

Some popular fallacies regarding Cats are summarily disposed of by Mr. Mivart, and some curious facts mentioned. For instance, it is commonly believed that in the Isle of Man the Cats have no tails. It would be more correct to say that *some* Cats there have no tails, and in this breed the hind legs are relatively long. Mr. Jenner Weir saw one which had the fore legs so short as to be useless in walking, and the animal sat up like a Kangaroo. In the Museum of the Royal College of Surgeons is a skeleton of a Cat which was born without any fore-limbs, and yet could jump so well as to be able to leap upon a table. All the bones of the fore-limbs are entirely wanting, except the shoulder-blades. But there are plenty of Cats with tails in the Isle of Man. Mr. Bartlett has measured many in the island, and found them of all lengths up to ten inches.

Another popular story is that in China there is a breed of Cats with pendant ears, but this turns out to be not the fact. Père David, who has travelled so much in China, repeatedly sought to find such an animal, but was never able to see any, or even to learn that they existed.

Although the differences between the various breeds of the domestic Cat are very slight compared with those between different races of dogs, still very distinct varieties exist, but their distinctions repose chiefly on the colour and length or quality of the fur, and not on differences of form such as those we find existing between the greyhound and the pug, the spaniel and the mastiff.

On the different *species* of the genus *Felis*, Professor Mivart has a very interesting chapter (pp. 390—439), illustrated with portraits of many of them, and skulls of several fossil forms. Fifty different species are recognised, their distinguishing characteristics pointed out, and their geographical distribution briefly sketched. This is a very useful chapter, and will be perused with advantage by all who desire to possess some knowledge of such an important group of Mammals as the Cats, but who may not care to enter upon the details of anatomy and physiology with which the work is chiefly occupied.

* 'See 'Zoologist,' 1873, p. 3574, and 1876, pp. 4867 and 5038.

It is impossible to review the present volume without being struck at the amount of thought and labour which must have been bestowed on its production. If it be true, as it undoubtedly is, that the careful study of a succession of types belonging to different families will do more to further the progress of Biology than any other course of study that could be adopted, students have every reason to be grateful to Mr. Mivart for this important monograph, in which the natural history of the Cat as the type of a back-boned animal has been so clearly and ably demonstrated.

The Seals and Whales of the British Seas. By THOMAS SOUTHWELL, F.Z.S. Sm. 4to, pp. 128, with illustrations. London: Jarrold & Sons. 1881.

It is perhaps no exaggeration to say that 999 people out of every 1000 know nothing about Seals and Whales, have no opportunities of observing them, and perchance have never seen representatives of either, except in some aquarium or zoological gardens. For such persons the sources of information at present available are limited and not wholly satisfactory. It is true that certain species of Seals and Whales may be found represented in most museums of importance, but they are not always good specimens, nor invariably well preserved; while, without an adequate series for comparison and study, or an explicit and reliable text-book to guide one in the determination of the genera and species, it is impossible to gain much knowledge on the subject.

Of text-books there is a noticeable scarcity, although many valuable and important memoirs are scattered throughout the publications of scientific societies, or printed in volumes beyond the reach of the general public.

The best account of British Seals and Whales hitherto available is that contained in the second edition of Bell's 'British Quadrupeds,' a work to which Mr. Southwell has naturally turned, as embodying almost all that was known on the subject at the date of its publication in 1874. Taking this work as his model, Mr. Southwell has carefully collected the latest records of the occurrence of Seals and Whales on the British coasts, and

substituting, where possible, better figures of some of the species, has produced a very useful handbook on the subject.

The claims of certain species, such as the Greenland and Bladder-nosed Seals, to be considered British have been strengthened by the production of additional evidence of their recent occurrence here, and the author makes out a very good case on behalf of the Atlantic Right Whale (*Balæna biscayensis*), which he considers is occasionally met with in British waters, and which has in all probability been mistaken for the Greenland species, *Balæna mysticetus*. He gives a new figure of this, or at least a figure that will be new to most English readers, being a reduced copy of the coloured plate in Capellini's memoir on a Whale of this species which was captured in the Bay of Taranto in February, 1877. As the original of this plate was a carefully executed water-colour drawing made from the animal itself, it may be regarded as the most reliable figure of the species at present obtainable.

Some of Mr. Southwell's chapters strike us as being not so complete as they might be made. Such, for instance, are the chapters on the Beaked Whale, *Hyperoodon rostratus*, and the Broad Fronted Beaked Whale, *H. latifrons*. In 'The Zoologist' for 1878 (pp. 13-15) is a detailed description, with accurate measurements, by Mr. Henry Lee, of a specimen of the former species, which was killed in the Menai Strait in September, 1877. This account, it seems to us, might have been quoted with advantage by Mr. Southwell, since it embodies many details of interest which he has not noticed.

Again, we remark that several of Mr. Southwell's descriptions are too brief to enable an identification of the species. This is to be regretted, for, as the volume is exclusively devoted to British Seals and Whales, it would have been easy to make it so complete as to render it practically unnecessary for the student to refer to other sources of information.

Nevertheless, Mr. Southwell has brought together, in a convenient form, a good deal of interesting information about our marine mammalia, which, it may be hoped, will have the effect of stimulating further enquiry and observation of the habits of many species about which we have still much to learn.
